

## Rock band

Learn how to code your own musical instruments



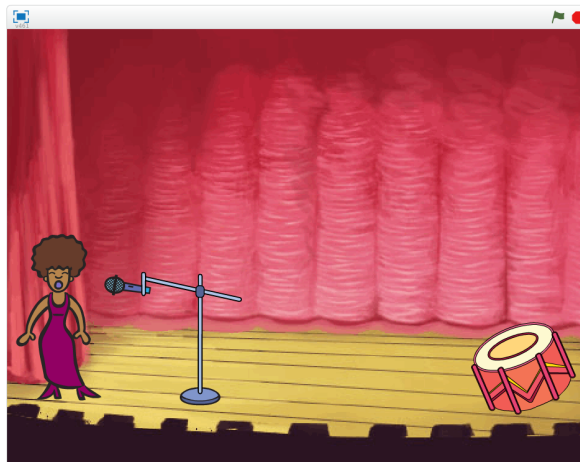
### Step 1 Introduction

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Learn how to code your own musical instruments!

#### What you will make

You will make a game where you can click on the singer or the drum to hear singing or drum sounds.



#### What you will learn

- How to add sprites and backgrounds to a Scratch project
- How to change a sprite's costume
- How to make sprites react when they are clicked
- How to play sounds in Scratch



## What you will need

### Hardware

- A computer capable of running Scratch 2.0

### Software

- Scratch 2.0 **offline** (<http://rpf.io/scratchoff>)



## Additional information for educators

You can download the completed project at [rpf.io/p/en/rock-band-scratch2-get](http://rpf.io/p/en/rock-band-scratch2-get) (<http://rpf.io/p/en/rock-band-scratch2-get>).

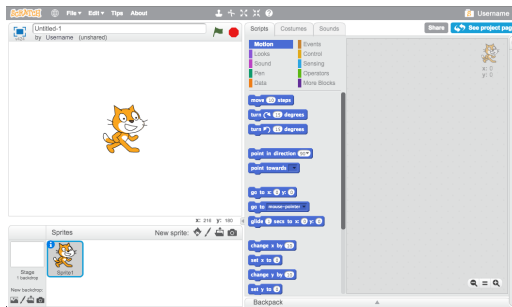
## Step 2 Sprites

Before you can start coding, you'll need to add in a 'thing' to code. In Scratch, these 'things' are called **sprites**.

Open a new Scratch project in the offline editor. ✔

If you need to download and install the Scratch offline editor, you can find it at [rpf.io/scratchoff](http://rpf.io/scratchoff) (<http://rpf.io/scratchoff>).

It looks like this:



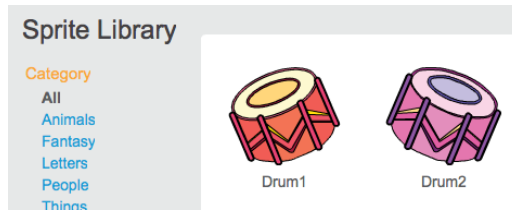
The cat sprite that you can see is the Scratch mascot. You don't need it for this game, so get rid of it by right-clicking it and then clicking on **delete**. ✔



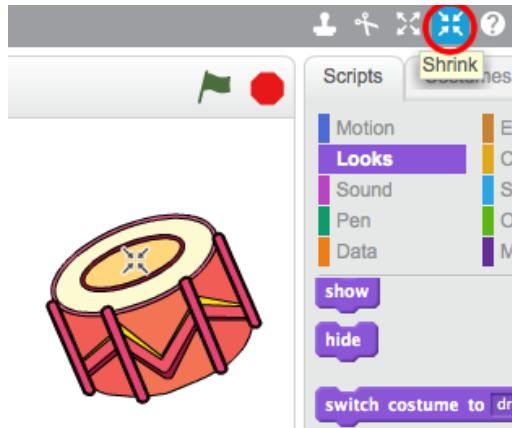
Next, click on **Choose sprite from library** to open up a list of all the Scratch sprites. ✔



Scroll down until you see a drum sprite. Click on a drum, and click on **OK** to add it to your project.



Click on the **shrink** icon, and then click on the drum a few times to make it smaller.



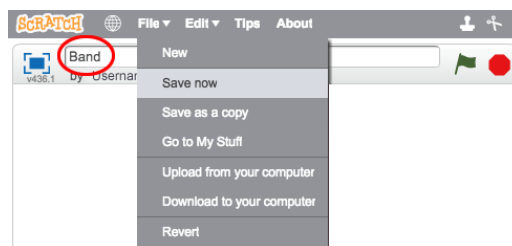
Then click and drag the drum to the bottom of the screen.

Give your program a name by typing one into the text box in the top left-hand corner.



Then click on **File**, and then on **Save now** to save your project.

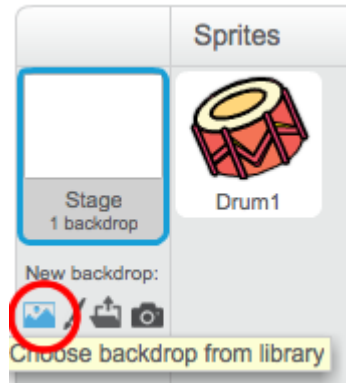
If you don't have a Scratch account, you can save a copy of your project by clicking on **Download to your computer** instead.



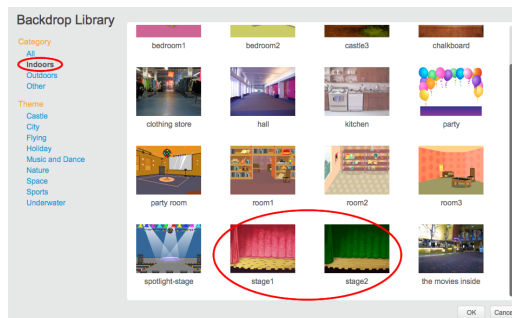
## Step 3 The Stage

The **Stage** is the area on the left, and is where your project comes to life. Think of it as a performance area, just like a real stage!

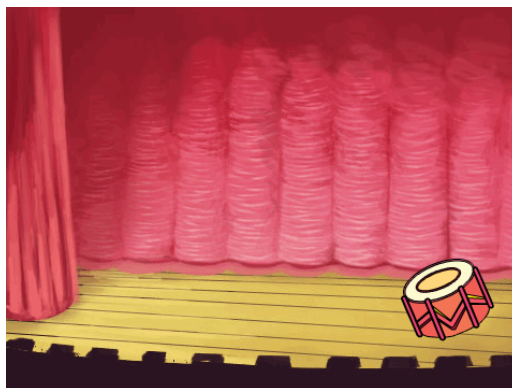
At the moment, the stage is white and looks pretty boring! Add a backdrop to it by clicking on **Choose backdrop from library**.



Click on **Indoors** in the list on the left. Then click on a stage backdrop, and finally click on **OK**.



Your stage should now look similar to this:



## Step 4 Making a drum

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Now you will add code to your drum so that the drum makes a sound when it's clicked.

You can find the code blocks in the Scripts tab, and they are all colour-coded!

Click on the drum sprite, and then drag these two blocks into the code area on the right:



Make sure that the blocks are connected together (like LEGO bricks).

Click on the drum to try out your new instrument!



 Challenge!

**Challenge: improving your drum**

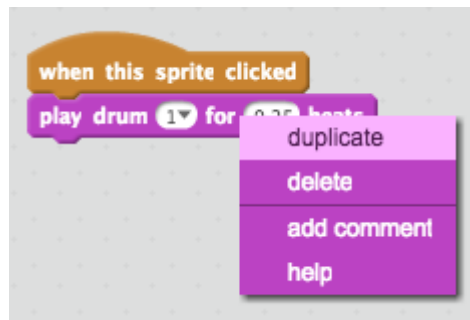
Can you change the sound that the drum makes when it's clicked?



Can you also get the drum to make a sound when the space bar is pressed? You'll need to use this **event** block:



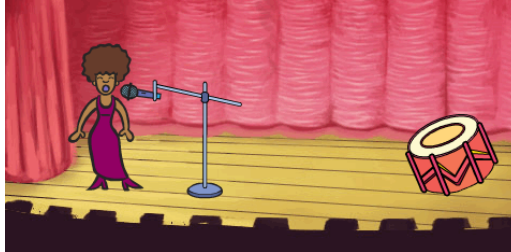
If you want to copy your existing code, right-click on it and then click on **duplicate**.



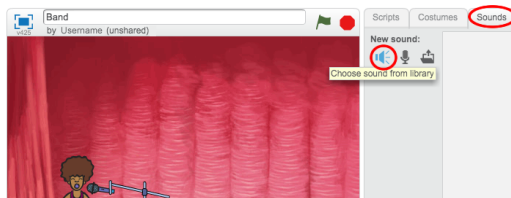
## Step 5 Making a singer

Now you will add a singer to your band!

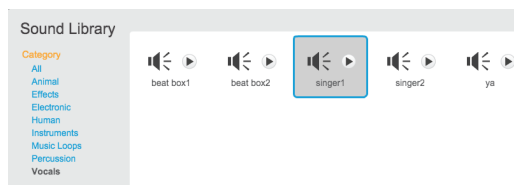
Add another two sprites to your stage: a singer and a microphone.



Before you can make your singer sing, you need to add a sound to your singer sprite. Make sure that you have selected your singer sprite, then click on the Sounds tab, and click on **Choose sound from library**:



Click on **Vocals** in the list on the left-hand side, and then choose a suitable sound to add to your sprite.



Now that the sound has been added, you can add the following code blocks to your singer sprite:




Click on your singer on the stage and see what happens. Does she sing?

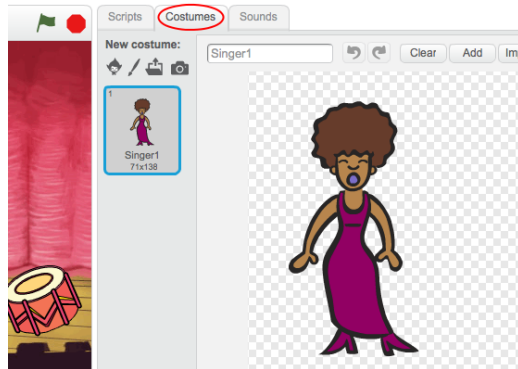




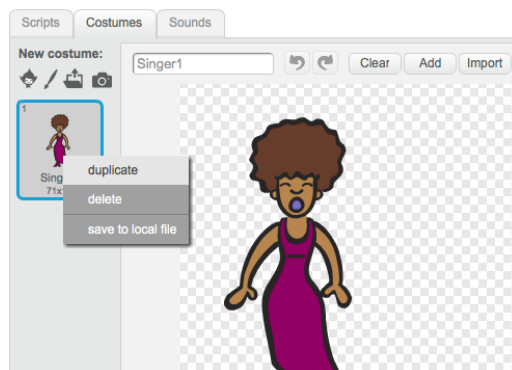
## Step 6 Costumes


Now you will make your singer look like she's singing!

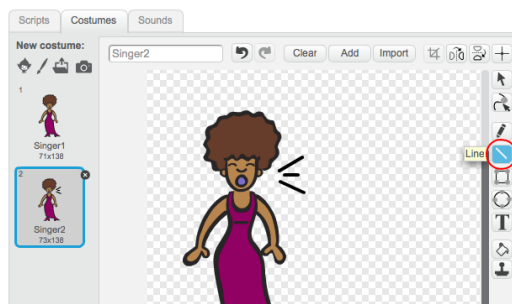
You can change how your singer sprite looks when it's clicked by creating a new costume. Click on the Costumes tab, and you'll see the singer costume. 



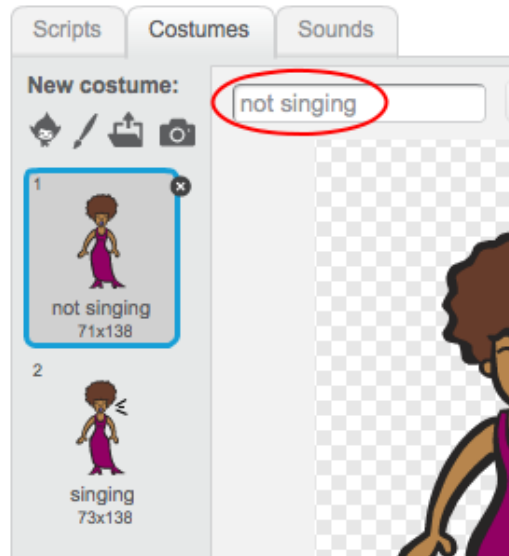
Right-click on the costume and then click on **duplicate** to create a copy of it. 



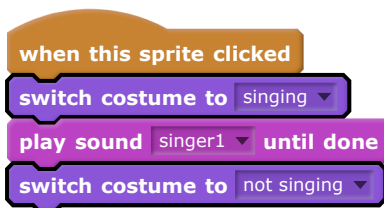
Click on the new costume (called 'Singer2'), and then select the line tool and draw lines so it looks like your singer is making a sound. 



The names of the costumes aren't very helpful at the moment. Type into the text boxes of the costumes to change their names to 'not singing' and 'singing'.



Now that you have two different costumes for your singer, you can choose which costume is displayed! Add these two code blocks to your singer sprite:



The code block for changing the costume is in the **Looks** section.

Click on your singer on the stage. Does she look like she is singing?



Now make your drum look like it's being hit!



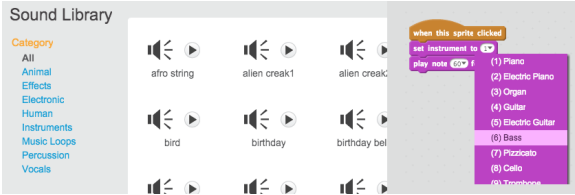
- Use the instructions for changing your singer sprite's costume to help you.

Remember to test that your new code works!

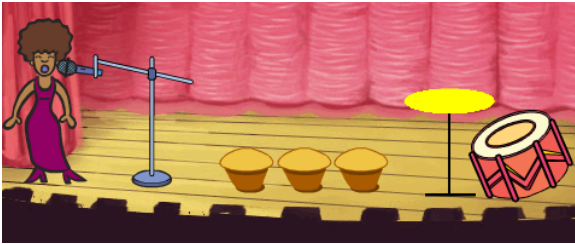
**Challenge!**

**Challenge: improve your band**

Use what you've learnt in this project to make your own band! You can create any instruments you like – look at the available instrument sprites and sounds to get some ideas.



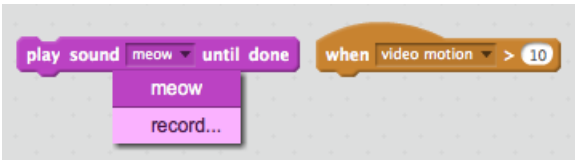
Your instruments don't have to be realistic though. For example, you could make a piano made out of muffins!



As well as using sprites from the library, you can also draw your own.



If you have a microphone, you can record your own sounds, and you can even use a webcam to hit your instruments!



## Step 7 What next?

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Now that you've built your first Scratch project, why not take a look at the **Lost in space** (<https://projects.raspberrypi.org/en/projects/lost-in-space/>) Scratch project?

Or if you like the idea of doing more projects using sounds and music, you can try out the **Compose a tune** (<https://projects.raspberrypi.org/en/projects/compose-tune>) Sonic Pi project!

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**View project & license on GitHub** (<https://github.com/RaspberryPiLearning/rock-band-scratch2>)